REMARKS

Now pending in this application are claims 1-13, of which claims 1, 5, 12, and 13 are independent. Claims 1-5 are on replacement pages published with the IPER. Applicant also draws attention to replacement pages for the specification, also published with the IPER.

Applicant amends the claims to eliminate multiple dependencies and to cast them in a form more customary for U.S. prosecution. The preambles of the independent claims are amended to remove language that is not required for providing antecedent basis. Method claims dependent on claim 5 have been converted to apparatus claims consistent with the change to claim 5 as reflected in the amended sheet published with the IPER.

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be examined. No additional fees are believed to be due in connection with this preliminary amendment. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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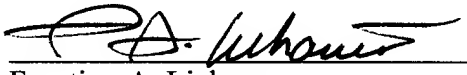

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Version with markings to show changes made

In the specification:

Paragraph beginning at page 7, line 25 has been amended as follows:

-- Fig. 1a illustrates an all-digital signal transmission path between a first subscriber terminal 1 and a second subscriber terminal 8. The first subscriber terminal 1 (a digital modem) is connected through a digital line portion 2 to a local digital switch 3. The local switch 3 is connected to a digital transmission network 4 which forwards digital signals between subscribers of the transmission network. On the other end of the all-digital signal path, the second subscriber terminal 8 is connected through a digital line portion 7 to a local digital switch 6. The local switch 6 is connected to the transmission network 4 through a digital impairment device 5. Fig. 1a shows an exemplary position of the digital impairment device within the transmission path. The digital impairment device may as well be part of any of the digital switches 3 and 6 or may be part of the transmission network 4 or of the transmission path 7.

Paragraph beginning at page 8, line 27 has been amended as follows:

-- Both Fig. 1a and Fig. 1b illustrate exemplary structures of transmission paths that may be encountered when trying to establish a connection between two subscribers of a transmission network wherein at least one of the two subscribers is connected to the network through a digital line portion such as ISDN. Depending on the structure encountered on the transmission path between the subscribers, they may agree upon a certain transmission scheme allowing a bit rate as high as possible for the encountered structure. Known transmission schemes are ITU-T V.34 using quadrature amplitude modulation on analogue transmission paths and ITU-T V.90 using pulse amplitude modulation on transmission paths having both analogue and digital line portions. Further, pulse amplitude modulation according to ITU-T V.90 can also be used as a transmission scheme on all-digital transmission paths. --

Paragraph beginning at page 9, line 8 has been amended as follows:

-- Fig. 2 is a diagram of a probing signal of the first embodiment of the invention. The probing signal is transmitted by the first subscriber terminal 1. ~~and of~~ Fig. 2 also shows a signal received by the second subscriber terminal 8 in the presence of a digital impairment device 5 introducing ADPCM to the signal transmission path between the first subscriber and the second subscriber. Terminal 1 sends 80 digital symbols of equal value in a first frame and then sends 80 digital symbols of the same absolute value, however, being negative in sign. The probing signal consists of a plurality of frame pairs as illustrated in Fig. 2 subsequently transmitted by the first terminal 1. --

Paragraph beginning at page 10, line 9 has been amended as follows:

-- Sequence (b) of Fig. 3 shows the signal received by subscriber terminal 8 (Modem 2) in the case of an all-digital, fully, transparent connection. Thus the frame sent by modem 1 is received by modem 2 with identical symbols, merely displaced in time. This case allows ~~to~~ establishment of a PCM transmission scheme between modem 1 and modem 2. Sequence (b) through (g) show received signals in the presence of digital impairments. Sequence (c) assumes an impairment of digital padding, i.e. the digital signal is attenuated. Thus the pulse symbol in the original probing sequence (a) is lower in its absolute value. --

Paragraph beginning at page 12, line 1 has been amended as follows:

-- The receiving modem will evaluate the received symbols and search for amplitude changes. If these changes occur only for one symbol per frame and the following symbols either return to the previous value or remain at the new value, the connection is detected as capable ~~to~~of carrying, a V.90 transmission scheme. If, however, the symbols after an amplitude change do not remain at the new value or do not return to the value before the change (in other words there is an impulse response over time), it is determined~~,~~ that a connection according to ITU-T V.90 is not possible. Typical impairments having an impulse response are voice compression algorithms and ADPCM, which may also be regarded as a compression algorithm~~, too~~. Whereas ADPCM has a characteristic impulse response to a~~n~~ change in amplitude, it depends on the design of a voice compression algorithm how large amplitude swings are processed and coded into the output signal of the voice compression coder. --

Paragraph beginning at page 13, line 11 has been amended as follows:

-- The appended program codes show how line probing signals according to the invention may be produced. The programs are based on a pseudo code. The program of appendix A corresponds to the embodiment of Fig. 2, and the program of appendix B corresponds to the embodiment of Fig. 3. By no means are these programs a limitation of the invention. --

In the claims:

Claims 1-13 have been amended as follows:

1. In a telephone network connecting a first subscriber end point to a second subscriber endpoint by a signal transmission channel having a digital channel portion, a ~~A~~ method of determining properties of ~~a~~ said signal transmission channel ~~between a first subscriber end point and a second subscriber end point of a telephone network (3, 4, 5, 6) having a plurality of subscribers, wherein a first subscriber terminal (1) is connected to said first subscriber end point and a second subscriber terminal (8) is connected to said second subscriber end point, wherein the telephone network (3, 4, 5, 6) upon request of a subscriber establishes a signal transmission channel between said first subscriber end point and said second subscriber end point, and wherein said first subscriber end point is connected to the telephone network (3, 4, 5, 6) by a digital channel portion (2)~~, said method comprising ~~the following steps~~:

sending a digital probing signal from a ~~said~~ first subscriber terminal connected to said first subscriber end point ~~(1)~~ to a ~~said~~ second subscriber terminal ~~(8), wherein the~~ connected to said second subscriber end point, said digital probing signal having ~~comprises~~ a sequence of probing frames, each probing frame ~~comprising~~ having at least one frame portion, each frame portion ~~comprising~~ having a preset number of digital symbols, each digital symbol having a sign bit and a data bit, wherein ~~the~~ absolute digital values of the symbols in the frame portions are equal, and wherein ~~the~~ a value of the sign bit changes with every adjacent frame portion,

receiving, at said second subscriber terminal, a received signal ~~which is the~~ resulting from having transmitted ~~of~~ said digital probing signal ~~having been transmitted~~ through said signal transmission channel ~~by the second subscriber terminal (8)~~;

comparing ~~evaluating~~ said received signal ~~by said second subscriber terminal (8) wherein the received signal is compared~~ with ~~that~~ said digital probing signal to ~~discriminate~~ distinguish between possible channel configurations of ~~the~~ said signal transmission channel; and

transmitting a response signal from said second subscriber terminal ~~(8)~~ to said first subscriber terminal ~~(1)~~, ~~wherein that~~ said response signal carryingies information indicative of a ~~about the comparison~~ result of comparing said received signal with said digital probing signal.

2. The method according to claim **1**, wherein sending a digital probing signal comprises setting all data bits of each symbol of a probing frame to have the same logical value.

3. The method according to claim **1**, wherein ~~characterised in that~~ sending a digital probing signal comprises setting the total number of symbols of a probing frame ~~is~~ to be greater than the number of symbols in ~~higher than~~ an impulse response of a digital impairment of the signal transmission channel.

4. The method according to claim **3**, wherein setting the total number of symbols of a probing frame further comprises selecting ~~characterised in that~~ the total number of symbols per probing frame ~~is~~ to be 80.

5. A subscriber terminal connected to a subscriber end point of a telephone network having a plurality of ~~the~~ subscribers, said subscriber terminal comprising:

~~means for~~ a connectiong between said subscriber terminal ~~(1) to~~ and a subscriber end point, said subscriber end point being connected to the telephone network ~~net work~~ ~~(3, 4, 5, 6)~~ by a digital channel portion,

~~means for~~ a probing signal transmitter for sending, to a second subscriber terminal ~~(8),~~ to which a signal transmission channel has been established, a digital probing signal ~~comprising~~ having a sequence of probing frames, each probing frame ~~comprising~~ having at least one frame portion, each frame portion ~~comprising~~ having a preset number of digital symbols, each digital symbol having a sign bit and data bits, wherein the absolute digital values of the symbols in the frame portions are equal and wherein the value of the sign bit changes with every adjacent frame portion.

6. The ~~method~~ subscriber terminal of claim **5**, wherein ~~characterised in that~~ one bit position of said at least one pulse symbol changes value with every other frame.

7. The ~~method~~ subscriber terminal of claim **6**, wherein ~~characterised in that~~ said one bit position is the position of the sign bit.

8. The ~~method~~ subscriber terminal of ~~any of~~ claims **5** ~~to 7~~, wherein ~~characterised in that~~ the number of equal symbols per frame is significantly higher than the number of pulse symbols.

9. The ~~method~~ subscriber terminal ~~any~~ of claim **5** ~~to 7~~, wherein ~~characterised in that~~ there is one pulse symbol per frame.

10. The ~~method~~ subscriber terminal of claim **5** ~~or 6~~, wherein ~~characterised in that~~ there are two pulse symbols per frame.

11. The ~~method~~ subscriber terminal of ~~any of~~ claims ~~5 to 10~~, ~~characterised in that~~ wherein the total number of symbols per frame is 80.

12. ~~In a~~ A telephone network ~~having a plurality of subscribers, wherein said telephone network upon request of a subscriber establishes a signal transmission channel between selected subscribers, a subscriber terminal connected to a subscriber end point of said telephone network~~ comprising:

~~means for~~ a connection~~g~~ between a ~~said subscriber terminal to said~~ subscriber end point of said telephone network and a first subscriber terminal, said subscriber end point being connected to the telephone network by a digital channel portion,

~~means for~~ a probing signal transmitter for sending, to a second subscriber terminal~~,~~ to which a signal transmission channel has been established, a digital probing signal having ~~comprising~~ a sequence of frames, each frame having ~~comprising~~ a sequence of digital symbols, each symbol having a plurality of bits, wherein ~~the~~ digital values of all symbols over all frames are equal except for one bit position of each symbol, the value of which changes with every other frame.

13. ~~In a~~ A telephone network ~~having a plurality of subscribers, wherein said telephone network upon request of a subscriber establishes a signal transmission channel between selected subscribers, a subscriber terminal connected to a subscriber end point, of said telephone network~~ comprising:

~~means for~~ a connection~~g~~ between a ~~said subscriber terminal to said~~ subscriber end point of said telephone network and a first subscriber terminal, said subscriber end point being connected to the telephone network by a digital channel portion,

~~means for~~ a probing signal transmitter for sending, to said second subscriber terminal, a digital probing signal having ~~comprising~~ a sequence of frames, each frame having ~~comprising~~ a sequence of digital symbols, each symbol having a plurality of bits, wherein ~~the~~ digital values of all symbols are equal except for at least one symbol of each frame having a significantly different digital value compared to the remaining equal values.